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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,091	09/21/2000	Ping Liang	XDM 00-02	6380

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EXAMINER

VU, TRISHA U

ART UNIT	PAPER NUMBER
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2189

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/667,091

Applicant(s)

LIANG, PING

Examiner

Trisha U. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09-25-03.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1, 3-6, and 8-34 are presented for examination.

Claims 2 and 7 were canceled by Applicant.

Claim Objections

2. Claim 16 is objected to because of the following informalities: "the first connector" (in line 4) should be changed to "the second connector" to be consistent with claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 18, 25-26 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hannah (5,784,581).

As to claim 18, Hannah teaches a mobile device that can operate both as a host or a device (Figs. 4 and 5) comprising: a housing having an expansion module bay (hub 42) (Fig. 4); a processor (controller 44) that can function as a USB controller configured to operate as a USB host or a USB device within the housing (col. 5, lines 31-52); and a USB connector (hub 42) coupled to the USB controller; the USB connector positioned within the expansion bay module in an expansion module-receiving position for receiving an expansion module having one or more circuits for providing expansion module function (Fig. 4 and col. 5, lines 31-52).

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As to claim 25, Hannah further teaches the USB controller is a USB host (col. 5, lines 31-52).

As to claim 26, Hannah further teaches the USB controller is a USB device (col. 5, lines 31-52).

As to claim 28, Hannah teaches an expansion module (device 34) (Fig. 4) for a mobile device that can operate both as a USB host or a USB device (col. 5, lines 31-52) comprising: a USB interface (hub 42) coupled to a processor (controller 44) that can function as a USB controller configured to operate as a USB host or a USB device (col. 5, lines 31-52) and having one or more circuits (software/drivers) coupled to the USB interface for providing expansion module function (col. 5, lines 53-63); and a USB connector for the USB interface (hub 42) (Fig. 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6, and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hannah (5,784,581) in view of Kikinis (5,841,424) and further in view of Huang (6,280,252).

As to claims 1 and 3, Hannah teaches a mobile device that can operate both as a host or a device (Figs. 4 and 5) comprising: a processor (controller 44) that can function as a USB controller configured to operate as a USB host or a USB device (col. 5, lines

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31-52); a housing having an expansion module bay (hub 42) (Fig. 4); an expansion module (one or more downstream devices) having a first USB connector (port 58) (Fig. 5) and one or more circuits for providing expansion module function (software/drivers for camera, camcorder, disk drive...) (col. 5, lines 31-63); and a second USB connector (hub 42) positioned inside the bay to mate with the first USB connector when the expansion module is inserted in the bay, wherein the expansion module includes a USB interface (Fig. 4 and col. 5, lines 31-52). However, Hannah does not explicitly teach the expansion module includes a conversion circuit coupled between the USB interface and the first USB connector. Kikinis teaches a conversion circuit (USB adapter Fig. 6) coupled between peripheral USB devices (col. 5, lines 52-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a conversion circuit as taught by Kikinis in the system of Hannah to provide power conversion required by the specific connected serial peripheral device (col. 2, lines 13-18). However, Hannah and Kikinis do not explicitly teach the first and second connectors have a form factor smaller than a standard USB form factor. Huang teaches connectors have a form factor smaller than a standard USB form factor (mini USB connector) (col. 1, lines 5-10, 36-67, and col. 2, lines 1-9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement USB connectors having a smaller form factor as taught by Huang in the system of Hannah to provide a more compact system as today's digital equipment is getting smaller in size.

As to claim 4, Hannah further teaches a USB controller (controller 44) inside the housing of the mobile device (Fig. 4).

As to claim 5, Hannah further teaches the USB controller is configured to function as a USB host (col. 5, lines 31-52).

As to claim 6, Hannah further teaches the USB controller is configured to function as a USB device (col. 5, lines 31-52).

As to claims 8, 9, Kikinis further discloses the conversion circuit reduces/boosts the voltage of a signal on the first USB connector to a corresponding interface voltage and provides the reduced/boosted voltage to the interface if the voltage on the first USB connector is higher/less than the corresponding interface voltage (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claims 10, 11, Kikinis further discloses the conversion circuit reduces/boosts the voltage of an interface signal to a voltage expected at the first connector and provides the reduced/boosted voltage to the first connector if the interface voltage is greater/less than expected (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claim 12, Hannah further teaches a USB controller (controller 44) in the device (col. 5, lines 31-52). However, Hannah does not explicitly disclose a conversion circuit coupled between the USB controller and the second USB connector. Kikinis teaches a conversion circuit (USB adapter Fig. 6) coupled between peripheral USB devices (col. 5, lines 52-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a conversion circuit as taught by Kikinis in the system of Hannah to provide power conversion required by the specific connected serial peripheral device (coll. 2, lines 13-18).

As to claims 13, 14, Kikinis further teaches the conversion circuit reduces/boosts the voltage of a signal on the second USB connector to a corresponding controller voltage and provides the reduced/boosted voltage to the controller if the voltage on the second USB connector is higher/less than the corresponding controller voltage (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claims 15, 16, Kikinis further teaches the conversion circuit reduces/boosts the voltage of a controller signal to a voltage expected at the second connector and provides the reduced/boosted voltage to the second connector if the controller voltage is higher/less than the corresponding voltage expected at the second connector (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claim 17, Hannah does not explicitly teach an adapter having a third connector that is connected to a fourth connector, the third connector being a USB connector having a standard USB form factor, the fourth connector configured to mate with one of the first and second connectors. Kikinis discloses an adapter having a connector being a USB connector having a standard USB form factor, and another connector configured to mate with one of the connectors of other devices or PDA (note Fig. 6, col. 4, lines 49-67, and col. 5, lines 52-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an adapter as taught by Kikinis in the system of Hannah to expand the connection with other device(s) and allow successful interface to a specific peripheral device (col. 4, lines 14-28).

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5. Claims 19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hannah (5,784,581) as applied to claims 18 and 28 above, and further in view of Huang (6,280,252).

As to claims 19 and 29, Hannah does not explicitly teach the USB connector has a non-standard USB form factor. Huang teaches connectors have a form factor smaller than a standard USB form factor (mini USB connector) (col. 1, lines 5-10, 36-67, and col. 2, lines 1-9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement USB connectors having a smaller form factor as taught by Huang in the system of Hannah to provide a more compact system as today's digital equipment is getting smaller in size.

6. Claims 20-24 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hannah (5,784,581) as applied to claims 18 and 28 above, and further in view of Kikinis (5,841,424).

As to claim 20, Hannah does not explicitly teach a conversion circuit within the housing and coupled between the USB controller and the USB connector. Kikinis teaches a conversion circuit (USB adapter Fig. 6) coupled between peripheral USB devices (col. 5, lines 52-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a conversion circuit as taught by Kikinis in the system of Hannah to provide power conversion required by the specific connected serial peripheral device (coll. 2, lines 13-18).

As to claims 21, 22, Kikinis further teaches the conversion circuit reduces/boosts the voltage of a signal on the USB connector to a corresponding controller voltage and

provides the reduced/boosted voltage to the controller if the voltage on the USB connector is higher/less than the corresponding controller voltage (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claims 23, 24, Kikinis further teaches the conversion circuit reduces/boosts the voltage of a controller signal to a voltage expected at the USB connector and provides the reduced/boosted voltage to the USB connector if the controller voltage is higher/less than the corresponding voltage expected at the USB connector (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claim 30, Hannah does not explicitly disclose a conversion circuit coupled between the USB interface and the USB connector. . Kikinis teaches a conversion circuit (USB adapter Fig. 6) coupled between peripheral USB devices (col. 5, lines 52-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a conversion circuit as taught by Kikinis in the system of Hannah to provide power conversion required by the specific connected serial peripheral device (coll. 2, lines 13-18).

As to claims 31, 32, Kikinis further discloses the conversion circuit reduces/boosts the voltage of a signal on the first USB connector to a corresponding interface voltage and provides the reduced/boosted voltage to the interface if the voltage on the first USB connector is higher/less than the corresponding interface voltage (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

As to claims 33, 34, Kikinis further discloses the conversion circuit reduces/boosts the voltage of an interface signal to a voltage expected at the first

connector and provides the reduced/boosted voltage to the first connector if the interface voltage is greater/less than expected (note col. 6, lines 1-8 wherein the charging adapter converts the one voltage to the other).

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikinis et al (6,523,079) in view of Hannah (5,784,581).

As to claim 27, Kikinis et al. teaches a mobile personal digital assistant comprising: a housing having an expansion module bay (Fig. 1B); a processor functioned as a controller (local CPU) (abstract) and having one or more circuits for providing expansion module function (Fig. 4); and a connector (connectors 14 or 20) for the controller; the connector being positioned within the expansion module bay, the connector being position to receive a mating connector of an expansion module (col. 7, lines 3-12). However, Kikinis et al. does not explicitly disclose the connection employs USB protocol and the processor is configured to operate as a USB host or a USB device. Hannah teaches a connection utilizing USB protocol and a processor (controller 44) configured to operate as a USB host or a USB device (col. 5, lines 31-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement USB protocol as taught by Hannah in the system of Kikinis et al. because it is low cost, ideal for portable systems, hot swapping/plug and play. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the processor configured to operate as a USB host or a USB device as taught

by Hannah in the system of Kikinis et al. to permit communication between USB slave devices when the bus master is not present (col. 1, lines 54-58).

Response to Arguments

8. Applicant's arguments, with respect to the rejection(s) of claim(s) 1 regarding limitation "the first and second USB connectors have a form factor that is different than a standard USB form factor" (pages 9-11 of the Remarks) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference(s).

9. With respect to Applicant's argument on pages 10 of the Remarks that "the present invention include "one or more circuit for providing an expansion module function", for example a game card, or a modem, or any other functionality", it is noted that the features upon which applicant relies (i.e., game card, modem) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In this case, camera, camcorder, or disk drive function, etc... read into "one or more circuit for providing an expansion module function", and thus the rejection is proper.

10. With respect to Applicant's argument on page 10 of the Remarks that "there is no motivation or suggestion to combined Hannah and Kikinis ... even if the Hannah and Kikinis were combined, the combination will not disclose the elements of amended claim 1... Neither the camera nor the keyboards fall into this category.", again although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In*

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re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The expansion module of claim 1 is interpreted as any kind of expansion devices connected to the system. Therefore, Hannah teaches expansion module (e.g. camera, camcorder, disk drive, etc...). However, Hannah does not teach a conversion circuit between the USB interface and the connector. The motivation to combine the conversion circuit of Kikinis in the system of Hannah is to provide power conversion required by the specific connected serial peripheral device (col. 2, lines 13-18). Thus the rejection is proper.

Conclusion

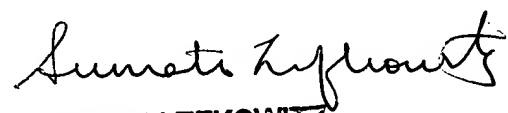
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trisha U. Vu whose telephone number is 703-305-5959. The examiner can normally be reached on Mon-Thur and alternate Fri from 7:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.


Trisha U. Vu
Examiner
Art Unit 2189

uv


SUMATI LEFKOWITZ
PRIMARY EXAMINER